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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/784,999	02/15/2001	Hisamitsu Shizuno	3158/FLK	4056
26304	7590	04/15/2004	EXAMINER	
KATTEN MUCHIN ZAVIS ROSENMAN 575 MADISON AVENUE NEW YORK, NY 10022-2585			TUGBANG, ANTHONY D	
			ART UNIT	PAPER NUMBER
			3729	
DATE MAILED: 04/15/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/784,999

Applicant(s)

SHIZUNO ET AL.

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The applicant(s) amendment filed 2/5/04 has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The prior art rejections with respect to Claims 1-7 are maintained and hereby repeated below for the applicant(s) convenience.

### ***Drawings***

4. The replacement sheet for the drawings (i.e. Figure 1) were received on 2/5/04. These drawings have been approved by the examiner.

### ***Specification***

5. The objection to the abstract in the previous Office Action has been withdrawn because the abstract, as filed originally, is believed to conform to the claimed invention, i.e. product of a multiplayer displacement element.

### ***Claim Rejections - 35 USC § 102***

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Maher 5,010,443.

Maher discloses a multiplayer displacement element comprising: a stacked plurality of ceramic layers and internal electrodes (see col. 3, lines 10-15), where each of the ceramic layers

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is composed of ceramic grains containing barium titanate as a major component (shown in Fig. 2).

***Claim Rejections - 35 USC § 103***

7. Claims 2, 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maher in view of Burn 4,283,753.

Maher teaches the claimed product as previously discussed and further including ceramic grains having an average diameter between 0.2-0.6  $\mu\text{m}$ .

Regarding Claim(s) 2, Maher does not teach that the average diameter of the grains within the ceramic layers is equal to or larger than 3.5  $\mu\text{m}$ .

Burn teaches that a multiplayer displacement element having barium titanate as a major component can have a crystal grain size where the average diameter is about 10  $\mu\text{m}$ . One such benefit of having a displacement element with the above grain size diameter allows a very good charge balance and stoichiometry of ingredients of the displacement element (see col. 7, lines 35-49).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the ceramic grain size of Maher by having each grain with the diameter size taught by Burn, to advantageously provide a displacement element with very good charge balance and stoichiometry.

Regarding Claim(s) 5 and 16, the relationship of those portions of one grain constituting one layer relative to the entire area of the ceramic layer and the upper range of the ceramic grains having an average diameter size being smaller than 7  $\mu\text{m}$ , are each features considered to be an

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effective variable within the level of ordinary skill in the art of ceramic layers formed in multiplayer displacement elements.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the grain portions and diameter size of either Maher or Burn by providing those portions where one grain constitutes one layer are equal to or larger than 20% of the entire area of the ceramic layer or where the upper range of ceramic diameter grain size is smaller than 7  $\mu\text{m}$ , since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maher.

As noted in Claim 5 above, the relationship of those portions of one grain constituting one layer relative to the entire area of the ceramic layer is considered to be an effective variable within the level of ordinary skill in the art of ceramic layers formed in multiplayer displacement elements. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the grain portions of Maher by provided those portions where one grain constitutes one layer are equal to or larger than 20% of the entire area of the ceramic layer, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

9. Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maher in view of Sheard 3,872,360.

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Maher, as relied upon above in Claims 1 and 3, discloses the claimed product. Maher does not teach that the internal electrodes are obtained by sintering nickel (Ni) powder as a major component.

Sheard shows that Ni powder is a conventional material to form internal electrodes by sintering for the benefits of having cheaper manufacturing materials (see col. 2, lines 45-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Maher by utilizing the electrode material of Sheard, to positively provide cheaper manufacturing materials.

10. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maher in view of Burn, as applied to claims 1 and 2 above, and further in view of Sheard, for the same reasons set forth in Paragraph 9 above.

### ***Response to Arguments***

11. Applicant's arguments filed 2/5/04 have been fully considered but they are not persuasive.

In regards to the merits of Maher, the applicant(s) believe that Maher fails to teach a displacement element having a ceramic layer of ceramic grains of barium titanate (last 2 lines of Claim 1).

The examiner most respectfully disagrees. Not only does Maher disclose the ceramic layers with ceramic grains of barium titanate (at col. 3, lines 3-10), but also Maher seeks coverage for this, particularly the component of barium titanate, in Claim 1 of his patent. To the

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examiner, it is absolutely clear that Maher discloses the claimed displacement element with respect to all of the limitations of Claim 1 of the instant application.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., relative amounts of electrostriction, dielectric constant, and desired amount of displacement) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With respect to the optimum values of the features of one grain constituting one layer with respect to the entire are of the ceramic layer and upper range of average diameter ceramic grain size, the examiner maintains that these features can be achieved by routine skill in the art. The examiner position is the prior art shows a range of average diameter size that is inclusive of the applicants claimed range of 3.5-7  $\mu\text{m}$ . For example, Maher shows ceramic grains with a lower range of 0.2  $\mu\text{m}$  average diameter size and Burn shows ceramic grains with an upper range of 10  $\mu\text{m}$  average diameter size. To achieve values within the prior art range, inclusive of the applicants' claimed range, would be obvious through routine skill in the art and for each of the advantages associated with Maher and Burn. It is noted that the prior art above teaches the identical chemical structure of ceramic layers with barium titanate as a major component where products of identical chemical composition cannot have mutually exclusive properties. *In re Spada*, 911 F. 2d 705, 709, 15USPQ2d 1655, 1658.

Accordingly, the examiner maintains the rejections above.

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*Conclusion*

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**A. Dexter Tugbang**  
**Primary Examiner**  
**Art Unit 3729**

April 14, 2004